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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/783,163	02/13/2001	Akira Kagami	36992.00067	2732

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EXAMINER	
SIDDIQI, MOHAMMAD A	

ART UNIT	PAPER NUMBER
2154	

DATE MAILED: 09/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/783,163	KAGAMI ET AL.	
	Examiner	Art Unit	
	Mohammad A. Siddiqi	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-20 are presented for examination. Claim 21-26 has been cancelled.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/08/2006 has been entered.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Regarding claim 1, the phrase "if necessary" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Axberg et al. (6,253,240) (hereinafter Axberg) in view of Saegusa et al. (6,745,281) (hereinafter Saegusa).

7. As per claim 1, Axberg discloses a storage management service system (101, fig 1, col 2, lines 59-61) comprising:

a storage on demand (SoD) center system (100, fig 1, col 2, lines 65-67);

a storage subsystem including a plurality of storage devices a plurality of I/O ports (130,131, fig 1 and 514, fig 5A, col 5, lines 50-59, port is an interface through which data are sent and received); an I/O port management table storing information on available connections between the I/O ports and the storage devices (connection table; col 20, lines 20-60), and a SoD resource management processor capable of communicating with the SoD center system and of modifying the device management table and the I/O port management table (please see description col 15-16col 20, lines 20-60, please see description col 15-16 and col 30, determining network configuration); and

a host computer coupled to (110, fig 1, col 3, lines 1-9, host computer system), said storage subsystem (100, 104, fig 1, col 2, lines 65-67 and col 3, lines 1-15, storage network), said host computer including a plurality of host I/O controllers, an I/O path setting table defining available connections between the host I/O controllers and the I/O ports (fig 11, connection table; col 20, lines 20-60; col 33, lines 1-26), an operating system capable of modifying the I/O path setting table, and an SoD agent capable of communicating with the SoD center system and of communicating with the operating system to request modification of the I/O path setting table (connection table; col 20, lines 20-60; col 33, lines 1-26, please see description col 15-16 and col 30, determining network configuration); and

said SoD center system is remote from the host computer and the storage sub-system (115, fig 1, col 2, lines 65-67 and col 3, lines 1-15, storage network); wherein each of said host I/O controllers is coupled via a different communication channel to a respective one of said I/O ports (connection table; col 20, lines 20-60; please see description col 15-16 and col 30, determining network configuration); and

said SoD center system is remote from the host computer and the storage subsystem (110, 115, fig 1,col 2, lines 65-67 and col 3, lines 1-15, host computer system; please see description col 15-16 and col 30, determining network configuration);

said SoD center system receives input of an SoD demand (col 2, lines 65-67 and col 3, lines 1-15, local agents 111-113 in fig 1, receive and response to the request), and, thereafter sends information to said SoD resource management processor on said storage subsystem to manage the device management table and the I/O port management table and thereby manage the usability of the storage devices and the available connections between the I/O ports and the storage devices (connection table; col 20, lines 20-60; col 33, lines 1-26), and if necessary sends information to the SoD agent on the host computer to request the operating system local agents (111-113 in fig 1, receive and response to the request for accessing individual devices) to manage the host I/O path setting table (connection

table; col 9, lines 50-60; col 20, lines 20-60; col 33, lines 1-26) and thereby manage available connections between the host I/O controllers and the I/O ports (col 3, lines 15-23, local agents 111-113 in fig 1, ; col 3, lines 15-26; col 3, lines 1-9, host computer collates the data to produce a coherent view of the data storage network and col 10, lines 51-58, please see description col 15-16 and col 30, determining network configuration).

Axberg does not specifically disclose a device management table defining usability of the storage device (resources table, col 20, lines 20-60), however Saegusa discloses a device management table storing information on usability of the storage device (flags, summary of invention, fig 3, col 10, lines 14-23).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teachings of Axberg and Saegusa. The motivation would have been to have a coherent view of the storage area network by gathering information about the attached storage networked devices.

8. As per claim 2, the claim is rejected for the same reasons as claim 1, above. In addition, Axberg discloses said host computer sends a setting result to said SoD center system (manager creates required connection object, col 37, lines 2-5).

9. As per claim 3, the claim is rejected for the same reasons as claim 1, above. In addition Saegusa discloses host computer and said storage subsystem are coupled by physical and logical connections between at least one of the host 1/0 controllers and at least one of the subsystem 1/0 Ports (please see summary of invention, fig 1).

10. As per claim 4, the claim is rejected for the same reasons as claim 1, above. In addition Saegusa discloses host I/O controllers and said I/O ports are coupled by a network switch (fabric switch, col 9, lines 35-50).

11. As per claim 5, the claim is rejected for the same reasons as claim 4, above.

12. As per claim 6, the claim is rejected for the same reasons as claims 1 and 2, above. In addition, Axberg discloses

each I/O port being uniquely connectable to one of a plurality of host I/O controllers on a user machine a device management store (fig 1), in which a status of said a plurality of storage devices is stored (col 20, lines 20-60), and an I/O port management store (fig 9A-9E), in which available connections between said plurality of I/O ports is stored (fig 9A-9E, cols 15-

16), and said plurality of storage devices are stored (fig 1, please see description col 15-16 and col 30, determining network configuration);

a storage resource management processor (col 15-16); connectable via a network to an SoD center system, the storage resource management processor being capable of communicating with a SoD center system and of modifying the device management store and the I/O port management store (fig 9A-9E, col 15-16; col 27, lines 34-65; please see description col 15-16 and col 30, determining network configuration); wherein

said storage management processor receives a demand for storage resources (col 30, lines 10-23), the demand specifying one of said storage devices (discover, col 30, lines 10-40), updates said device management store to manage the status of one of the storage devices and said I/O port management store to manage the available connections between the one storage device and the machine (discover, col 30, lines 10-40, please see description of fig 9A-9E; col 27, lines 34-65), **and** sends a management result responsive to said demand to the SoD center system(list of objects, col 30, lines 10-40; please see description col 15-16 and col 30, determining network configuration);

updates to at least one of a plurality of paths connecting to storage resources allocated from at least one of said plurality of storage devices are defined to an operating system (refresh operation, col 30, lines 10-40) of

said user machine (refresh operation, col 30, lines 10-40); and said SoD center system is remote from said plurality of storage devices and from said user machine (fig 1; please see description col 15-16; col 27, lines 34-65 and col 30, determining network configuration).

13. As per claim 7, the claim is rejected for the same reasons as claim 1, above. In addition Axberg discloses plurality of storage devices that comprising at least one of a magnetic disk, an optical disk, a magnetic -optical disk, and semiconductor memory (120, fig 1).

14. As per claim 8, the claim is rejected for the same reasons as claim 6 above. In addition Axberg discloses a communications interface to a network, said storage management processor receiving said demand for storage resources over said network (110, fig 1, col 2, lines 65-67).

15. As per claim 9, the claim is rejected for same reasons as claims 6 and 4, above.

16. As per claims 10 and 19, claims are rejected for the same reasons as claims 1- 6, above.

17. As per claim 11, the claim is rejected for the same reasons as claim 10, above. In addition, Saegusa discloses storing an indication that a particular 1/0 port in said storage subsystem is accessible to a particular host 1/0 controller (fig 3, flags).

18. As per claims 12 and 20, the claim is rejected for the same reasons as claim 10, above. In addition, Axberg discloses receiving at said center system computer an input of a demand for storage resources (discover, col 30, lines 10-40);

determining whether sufficient resources exist to meet said demand (discover, col 30, lines 10-40);

sending said demand for storage resources to said storage subsystem (discover operation, col 30, lines 10-40), if sufficient resources were determined to exist (discover operation, col 30, lines 10-40);

receiving from said storage subsystem a management result (list of objects, col 30, lines 10-40), said management result indicating whether storage resources have been successfully allocated in accordance with said demand (fig 15 A, 15 B, refresh operation, col 30, lines 10-40);

storing said management result (fig 15 A, 15 B, refresh operation, col 30, lines 10-40);

determining whether said demand includes an 1/0 path setting request (fig 15 A-17, refresh operation, col 30, lines 10-40);

sending said 1/0 path setting request to said host computer, if said demand included an 1/0 path setting request, receiving said setting result from said host (fig 15 A-17, refresh operation, col 30, lines 10-40); and

storing said setting result (fig 15 A-17, please see appendix further see description on col 15-16 and col 30, determining network configuration).

19. As per claim 13, the claim is rejected for the same reasons as claim 1, above. In addition, Axberg discloses receiving said demand for storage resources at said storage subsystem (fig 15 A, 15 B, refresh operation, col 30, lines 10-40);

determining whether said demand includes a command to make at least one of a plurality of installed devices available (fig 15 A, 15 B, refresh operation, col 30, lines 10-40);

updating a device management store, if said demand includes a command to make at least one of a plurality of installed devices available (fig 15 A, 15 B, refresh operation, col 30, lines 10-40);

updating an I/O port management store (fig 15 A, 15 B, refresh operation, col 30, lines 10-40);

and sending a resource management result to said center system (list of objects, fig 15 A, 15 B, refresh operation, col 30, lines 10-40).

20. As per claim 14, the claim is rejected for the same reasons as claim 1, above. In addition, Saegusa discloses storing an indication that a particular device is usable (flags, fig 3).

21. As per claim 15, the claim is rejected for the same reasons as claim 10, above. In addition, Axberg discloses storing an indication that a particular 1/0 port is usable (col 15-16).

22. As per claim 16, the claim is rejected for the same reasons as claim 10, above. In addition, Axberg discloses receiving at said storage subsystem an 1/0 command to access storage resources from said host (discover operation, col 30, lines 10-40);

determining whether storage resources requested by said 1/0 command are usable (discover operation, col 30, lines 10-40);

performing said i/o command, if said storage resources requested by said 1/0 command are usable (discover operation, col 30, lines 10-40);

otherwise rejecting said 1/0 command; and sending an 1/0 result to said host (discover operation, col 30, lines 10-40; please see description on col 15-16 and col 30, determining network configuration).

23. As per claim 17, the claim is rejected for the same reasons as claim 10, above. In addition, Axberg discloses searching said device management store to determine whether devices requested in said 1/0 command are usable (discover operation, col 30, lines 10-40).

24. As per claim 18, the claim is rejected for the same reasons as claim 10, above. In addition, Axberg discloses searching said 1/0 port management table to determine whether 1/0 ports requested in said 1/0 command are usable and whether devices requested in said 1/0 command are accessible via 1/0 ports requested in said 1/0 command (discover operation, col 30, lines 10-40).

Response to Arguments

25. Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the

applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

26. Applicant's arguments with respect to claims 1, 6, 2 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

U.S. Patent 6,260,120

U.S. Patent 6,944,152

U.S. Patent 6,332,198

U.S. Publication 2004/0044744

U.S. Patent 6,742,059

U.S. Publication 2001/0008010

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad A. Siddiqi whose telephone number is (571) 272-3976. The examiner can normally be reached on Monday -Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A. Follansbee can be reached on (571) 272-3964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MAS

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